

Perspectives on Glyphosate Technologies within the North Central Cropping Systems

Chris Boerboom
University of Wisconsin

Glyphosate Technologies



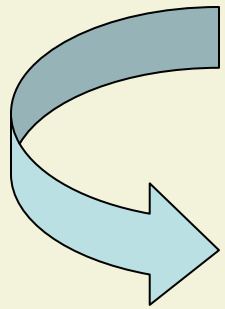
Burndown in no-till



Glyphosate-resistant crops

in-season glyphosate use

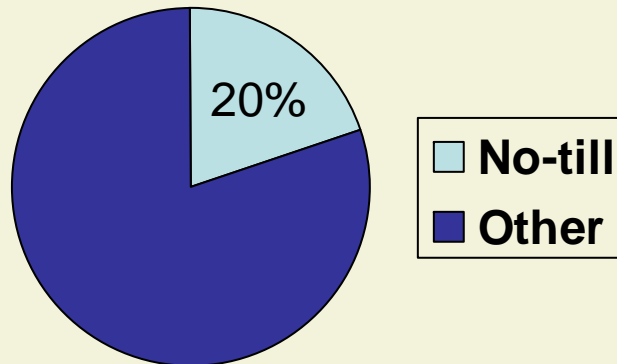




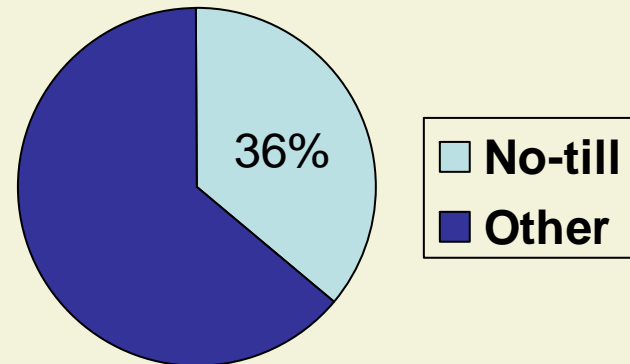
Glyphosate Technologies

Burndown in no-till

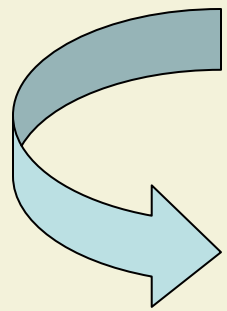
No-till Corn



No-till Soybean



CTIC 2004



Glyphosate Technologies

Burndown in no-till

40 Million No-till Acres

105 Million Acres



Fuel Price?



Glyphosate Technologies

Glyphosate-resistant crops
in-season glyphosate use



Glyphosate Technologies

Glyphosate-resistant crops

in-season glyphosate use 

2005

@ 90% GR soybean

@ 30% GR corn

@ 70% GR canola

2006

GR soybean?

GR corn?

GR canola?

GR alfalfa?

Glyphosate-Resistant Weeds



NC Herbicide Resistant Weeds

	ND	SD	NE	MN	IA	MO	WI	IL	MI	IN	OH	PE
Lambsquarters				1	1		1	1	2	1	2	1
Pigweed spp.	1			1			1	1	2	1	1	2
Kochia	3	1		1	1		2	2		2		
Waterhemp			1		2	2	1	3	1		1	
Common ragweed				1		1	1	1	2	1	1	
Giant ragweed					1		1	1		1	1	
Horseweed						1			2	1	2	1
Foxtail spp.	1			2	2		1					1
Shattercane			1		1						1	1
Cocklebur				1	1	1					1	
Sunflower		1			1	1						
E. B. Nightshade	1						1	1				
Wild oat	2			1								
Velvetleaf				1			1					
Wild carrot									1		1	
Smartweed spp.					1					1		

7 single state species

At the end of the Day

Reduce selection pressure from glyphosate

Reduce Selection Pressure

Limit use of glyphosate-based systems

- Continuous glyphosate-resistant crops?

Diversify herbicide use

- Ideally, use more than one herbicide mode of action on all weeds every year
- Rotate glyphosate with other herbicides
- Burndown herbicide application includes 2,4-D
- Use preemergence herbicides
- Apply glyphosate in combination with other POST herbicides

At the end of the Day

Reduce selection pressure for glyphosate

Improve weed management when glyphosate
is used

Capture the benefits of PRE herbicides

Controls or suppresses the initial flush of weeds

- Protects yield from early weed competition

Reduces selection pressure from glyphosate

- Fewer weeds at time of POST application

Maximizes glyphosate activity

- Weeds are smaller when POST applied



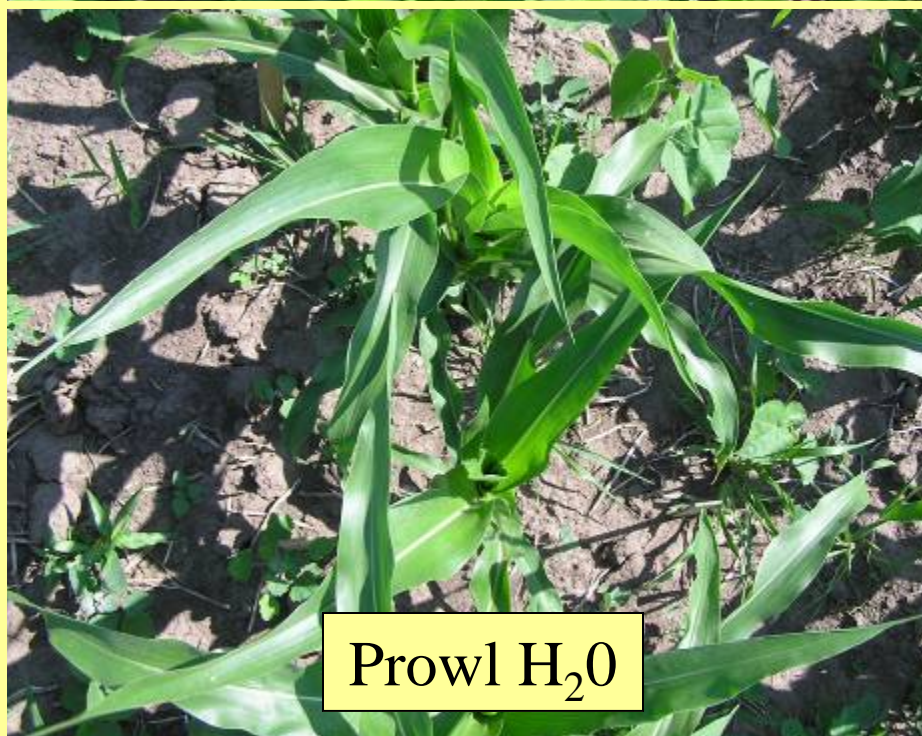
Nontreated



Atrazine



Harness



Prowl H₂O

Manage POST glyphosate applications

Make first application to young, small weeds

- Less than 6 inches tall, less than 4 weeks old

Use appropriate glyphosate rates

- 0.75 lb/a too low on tough weeds
- 1.1 to 1.5 lb/a

For some weeds, if escapes exist, make a second application to prevent seed production (not a planned program)

- 0.75 to 1.1 lbs

Summary

1. Glyphosate technologies have value
 - no-till and in-crop
 - high intensity of use
2. Several key North Central weeds of concern
 - multiple resistance potential
3. Need to improve management
 - overall weed management
 - resistance management